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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/075,965	02/13/2002	John Paul Ronaldson	UDL1P044C1	1141

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EXAMINER

BEHREND, HARVEY E

ART UNIT PAPER NUMBER

3641

DATE MAILED: 07/03/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

05

Office Action Summary

Application No.

10/075965

Applicant(s)

Ronaldson et al

Examiner

Behrend

Group Art Unit

3681

—The MAILING DATE of this communication appears on the cover sheet beneath the correspondence address—

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, such period shall, by default, expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).

Status

- ☒ Responsive to communication(s) filed on 5/28/03
- ☐ This action is FINAL.
- ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 111; 453 O.G. 213.

Disposition of Claims

- ☒ Claim(s) 1-5, 10-33 is/are pending in the application.
- Of the above claim(s) 13-26 is/are withdrawn from consideration.
- ☐ Claim(s) _____ is/are allowed.
- ☒ Claim(s) 1-5, 10-12, 27-33 is/are rejected.
- ☐ Claim(s) _____ is/are objected to.
- ☐ Claim(s) _____ are subject to restriction or election requirement.

Application Papers

- ☐ See the attached Notice of Draftsperson's Patent Drawing Review, PTO-948.
- ☐ The proposed drawing correction, filed on _____ is ☐ approved ☐ disapproved.
- ☐ The drawing(s) filed on _____ is/are objected to by the Examiner.
- ☐ The specification is objected to by the Examiner.
- ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. § 119 (a)-(d)

- ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d).
- ☐ All ☐ Some* ☐ None of the CERTIFIED copies of the priority documents have been received.
- ☐ received in Application No. (Series Code/Serial Number) _____
- ☐ received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

*Certified copies not received: _____

Attachment(s)

- ☒ Information Disclosure Statement(s), PTO-1449, filed with case, Paper No(s)
- ☒ Notice of Reference(s) Cited, PTO-892
- ☐ Notice of Draftsperson's Patent Drawing Review, PTO-948
- ☐ Interview Summary, PTO-413
- ☐ Notice of Informal Patent Application, PTO-152
- ☐ Other _____

Office Action Summary

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1. Applicants election with transverse in the 5/28/03 response of Group I is acknowledged. However, restriction is still considered proper for the reasons presented in the 4/28/03 Office action. Due to the different method steps in Group II versus Group I, the examination of both of Groups I and II would represent an undue burden.

As to the election of species requirement, applicant on page 3 of the 5/28/03 response has indicated that he has elected:

1. a normal distribution for each of the single, double and triple count rates,
2. a flat distribution for the self-induced fission rate,
3. a triangular distribution for the detector efficiency and,
4. a triangular distribution for the alpha, n reaction rate.

Applicant is considered as indicating claims 1-5, 10-12, 27-33 as being readable on each of the elected species.

2. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

3. Claim 33 is rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention. There is no proper support in the original

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disclosure for reciting that the spontaneous fission rate is "associated with" the neutron source mass. This language is not found in the original disclosure.

4. Claims 1-5, 10-12, 27-33 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the enablement requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention.

There is no adequate description nor enabling disclosure of what all is meant by and is encompassed by the phrase, "the spontaneous fission rate is associated with the neutron source mass" (there is no disclosure of what all is meant by and is encompassed by the term "associated with").

There is no adequate description nor enabling disclosure of how and in what manner, the detected singles, doubles and triples are actually utilized in determining the isotopic makeup of the "sample".

The disclosure is insufficient as to the "correction factor" (bottom of page 5 and pages 10+ of the specification) and as to exactly how and in what manner it is utilized. The disclosure is insufficient as to how and in what manner the "constant factors" are determined (pages 12+ of the specification).

The disclosure is insufficient as to how and in what manner, the spontaneous fission rate is "linked" to the mass of the neutron source.

The disclosure is insufficient as to how and in what manner, a normal distribution, a flat distribution and a triangular distribution, differ from one another.

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The disclosure is insufficient as to how and in what manner, a symmetrical probability distribution differs from a skewed probability distribution and as to how and in what manner, such effects the results (see page 7 of the specification).

The disclosure is insufficient as to how and in what manner, the constraints/ boundaries are determined (pages 7+ of the specification).

The specification is insufficient in failing to define each of the variables/ components in each of the equations and formulas on pages 6+ and in showing how and in what manner they are determined. The disclosure is also insufficient as to how and in what manner, each of the constants in the formulas/equations, are determined.

The disclosure is insufficient as to how and in what manner, the "information" referred to in the specification on page 9 lines 2+, would actually be applied (the disclosure is also insufficient as to what this "information" actually is).

The disclosure is insufficient and non-enabling as to the actual manner and steps utilized in obtaining an optimized or maximized solution (the bottom of page 9 of the specification).

The disclosure (e.g. see pages 12+ and 26+ of the specification) are insufficient as to exactly how and in what manner, the actual error estimates are arrived at.

The disclosure is insufficient as to how and in what manner, the four steps recited in claim 1 actually serve to provide the isotopic content of the sample.

The disclosure is insufficient as to what, the value of the product of all of the probability distribution factors, is increased by (e.g. see claim 1).

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The disclosure is insufficient and non-enabling as to how and in what manner, each of the values for the self-induced fission rate, detector efficiency, alpha-n reaction rate and each of the counting rates, is respectively varied so as to maximize the product of all of the probability distribution factors (nor as to how and in what manner, one can actually determine by what amount, each of said variables is to be actually varied).

There is no adequate description nor enabling disclosure as to how and in what manner (since each pulse causes a time period to be considered) other pulses being received in that period are "associated" with the initial pulse, nor, of what the "sequence" consists of, nor, of how and in what manner, the number of pulses in the sequence give the single, double, triple and greater number of neutron counts.

It is noted that the claims basically recite an attempt to define the subject matter in terms of the result to be achieved which at most amount to a statement of the presumed underlying problem (there is no adequate description nor enabling disclosure of the actual technical features necessary for actually operatively achieving this result).

5. 35 U.S.C. 101 reads as follows:

Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

6. Claims 1-5, 10-12, 27-33 are rejected under 35 U.S.C. 101 because the invention as disclosed is inoperative and therefore lacks utility.

The reasons that the invention as disclosed is inoperative are the same as the reasons set forth in section 4 above as to why the specification is objected to and is considered non-enabling and the reasons set forth in said section 4 above are accordingly incorporated herein.

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7. Claims 1-5, 10-12, 27-33 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

The claims are vague, indefinite and incomplete.

It is not clear as to what is actually being determined by the last step (step iv) in claims 1 and 27.

Claims 1 and 27 are vague, indefinite and incomplete as to exactly what, the value of the product of all of the probability distribution factors is increased by; as to exactly what the optimized solution is of; as to what factors or variables the solution is optimized in; as to how the resulting value is "linked" to the mass of the neutron source (and as to what the mass of the neutron source has to do with the monitoring of the sample); as to what the probability distribution and probability distribution factors are, as to how and in what manner they are determined; as to what the "mathematical functions" are that the single, double and triple count rates are equated to; and as to how and in what manner, the results from step (i) and (ii), are actually utilized in the subsequent steps and in the monitoring of the sample.

The claims improperly attempt to define the subject matter in terms of the result to be achieved which at most, merely amounts to a statement of the presumed underlying problem. The claims are thus vague, indefinite and incomplete in failing to recite all of the technical feature necessary to actually operatively achieve this result.

The claims are vague, indefinite and incomplete in failing to recite that the value for each of the self-induced fission rate, detector efficiency, alpha-n reaction rate and

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each of the counting rates, is varied to maximize the product of the probability distribution factors (and as to how and in what manner each of said values is to be actually varied).

The claims are vague, indefinite and incomplete as to how and in what manner, the various constants are to be determined.

Terms such as "preferably", etc., render the claims vague, indefinite and incomplete as to exactly what is being claimed.

Terms such as "rapidly", etc., are relative, they can be given no definite meaning and accordingly they render the claims vague and indefinite and the metes and bounds thereof are undefined.

Claims such as claims 4 and 5 are vague, indefinite and incomplete in failing to define each of the variables or symbols in the equation.

There is no proper antecedent basis for the term "sequence" in claim 28.

8. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

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9. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

10. Claims 1-5, 10-12, 27-33 are rejected under 35 U.S.C. 103(a) as being unpatentable over any of Wachter et al, Caldwell et al or Untermeyer, alone or with either Wyllie or Baron.

The primary references each illustrate the monitoring of a sample containing a neutron source utilizing the count rates for singles, doubles and triples.

Applicants claimed probability distributions, manner of optimizing, etc., appear to be no more than the conventional assumptions, estimations, approximations, etc., that would inherently be utilized in putting the systems of any of the primary references into actual practice. Likewise with the various formulas/equations set forth in the claims.

If applicant is not convinced that such "probabilities", etc., are conventionally and routinely utilized in this art, resort may then be had to the teachings thereof in either secondary reference.

11. The other references cited further illustrate pertinent art.

12. The references listed as 2-4 on Form 1449 (the IDS filed 2/13/02) have not been considered as copies were not provided in either the present case or in parent case SN 09/554142.

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13. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Harvey Behrend whose telephone number is (703) 305-1831. The examiner can normally be reached on Tuesday to Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Michael Carone, can be reached on (703) 306-4198. The fax phone number for the organization where this application or proceeding is assigned is (703) 306-4195.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 306-1113.

A handwritten signature in black ink, appearing to read 'H. Behrend', with a large, stylized loop at the end.

**HARVEY E. BEHREND
PRIMARY EXAMINER**

Behrend/kn
June 25, 2003